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Demographic Determinants of Physical Injuries in Rawalpindi: Role of Rescue 1122

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ABSTRACT

Objective: To determine demographic characteristics, patterns and causes of physical injuries encountered in Rawalpindi. 2. To access the utilization status of publically available free of cost Emergency Medical Service System of Rescue 1122.

Patients and Methods: This cross-sectional study was conducted from November 2016 to March 2017. Data was collected from Rescue 1122 and emergency departments of government hospitals. There were total 2556 reported injured, with no age or gender discrimination. In order to collect the information, briefly designed performas in Urdu language were circulated among the attendants of the injured and sometimes to the injured individuals.

Results: Out of 2556 injuries reported during the study period, 1464 (57.30%) were due to fall from heights while 319 (12.5%) accidents were because of road crashes. Among the road crashes, the highest incidence rate for injuries was due to bikes (n=166). As evident from the study that minor injuries; mostly abrasions were most frequent compared with the rest of the types of injury. Out of 2556 cases, only 2.6% (n=67) were transported through Rescue 1122. Majority of the sufferers (27%) had to arrange a private transport to rush to the hospital. Cars were used by 18% and private ambulances by 21% to transport the injured from accident site.

Conclusion: Roadside accidents comprise a significant cause of injury. In view of provision of services at the time of these mishaps, rescue 1122 service, though available free of cost, is underutilized.

Keywords: Hospitals, Injuries, Rescue 1122, Wounds.

Author`s Contribution	Address of Correspondence	Article info.
[1] Conception, synthesis, planning of research and manuscript writing *[2] Interpretation and discussion* *[3] Data analysis, interpretation and manuscript writing, [4,] Active participation in data collection*	*Ahsan Waqas Khan Niazi* *Email: ahsanniazi99@gmail.com*	*Received: June 1, 2017* *Accepted: August 29, 2017*

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Introduction

Globally about 5 million people die per annum because of injury, and the 15-44year people are affected mostly.[1,2] The leading mechanisms of injury are Road Traffic Crash (RTC), Inter Personal Violence, Self-harm, war, drowning and fire. People with lower socioeconomic strata are more vulnerable because of unsafe living and working environment.[3] RTCs are significant public health issue globally and countries who prioritize human wellbeing have taken remedial measures. Low Income Countries and Medium Income Countries having the 48% of global registered vehicles do face more than 90% of death toll by RTCs. “Vulnerable road users” are pedestrians, cyclists,

riders and passengers of two-wheel vehicles are more prone to injury and comprise 46% global death toll (WHO).[2] This figure is higher in under developed countries.

In developing world, the cost of injury is estimated at 65 billion dollars and global figure rises up to 230 billion annually.[4] History of injuries by fire, drowning, fall and IPV dates back from the early ages of human. However, the pattern of injuries is changing but still trauma remains on the top.[3] A cyclist in New York city was reported to be first trauma sufferer on 30 May 1896 followed by a pedestrian facing fatal injury in London.[5]

About 7000 people lose their life in Pakistan annually as an outcome of RTC.[6] About 2 million RTC were reported in 2006 by National Road Safety.[7] Cost of 2 million RTCs in 2006 was estimated to be 1.14 billion dollars that had to bear by Pakistani nation.[7] First national injury survey of Pakistan stated incidence of physical injury as 41 per 1000 individual, of which more than 1/3 were road traffic crashed.[4] Another cause of injury; Intimate partner violence, is found to be as 44% in married women as marital physical abuse.[8] Blast injuries are the outcome of terrorist activities in various countries over the world especially in Pakistan since recent past. To address the burden of mortality and severe distorting disability; 58 bomb blasts resulted in 689 injured and 164 ended up to death.[9] A public private partnership between heart file and government of Pakistan had been launched in April 2003.The partnership is NAP-NCD to address determinants, and to develop strategies to address the causes of road traffic crashes, occupational injuries, falls, burns, intimate partner violence, fire and other unusual causes of injury.[10] Emergency Medical Services organizations are the direct providers of pre-hospital care in many developed countries. Some of them have attained the service coverage to 70% of population. The examples are USA, UK, Canada, Australia and Sweden. Until a few years ago, Pakistan had no Emergency Medical Services.[11] Rescue 1122 is, claimed to be the first and only search and rescue service in Public Sector of Punjab Province; providinga pre-hospital care and rescue services to the victims of almost all types of injury by trained Emergency Medical Technician. It was started under Punjab Emergency Ordinance in 2004.[11] It is further claimed that Rescue 1122 has set an economical and effective system of pre-hospital care.[11] Moreover, it is claimed to be following the WHO Guidelines.[12] All the above claims are not supported by any prospective or retrospective clinical trials and supporting evidence. Edhi Foundation is another rescue ambulance service. They have the largest fleet of ambulance in Pakistan but they do primarily transfer the injured to hospitals and do not provide Pre-hospital care to the injured victims. [13]

Patients and Methods

It was a cross sectional study conducted from November 2016 to March 2017. All the injured persons were included in the study irrespective of their injury type, mode of injury and gender. Data was collected from central data bank records of Rescue 1122 and from emergency departments of main tertiary care hospitals i.e. Benazir Bhutto Hospital and Holy Family Hospital present in district Rawalpindi. In order to collect the information, briefly designed performas in Urdu language were circulated among the attendants of the injured and sometimes to the injured themselves. All the data was analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0. All the qualitative variables were expressed in the form of frequency and percentage.

Results

Out of 2556 injured people, 65.7% were male. Most of participants belonged to 31-40 years of age with monthly income between 15,000-30,000 rupees (Table 1).

Table 1: Demographic characteristics of participants (n=2556)

Variables		Frequency	Percentage
Age (years)	1-10	185	7.2
	11-20	429	16.8
	21-30	468	18.3
	31-40	559	21.9
	41-50	469	18.3
	> 50	446	17.4
Gender	Male	1679	65.7
	Female	877	34.3
Economic status (Rupee)	< below 15,000	649	25.4
	15,000–30,000	1622	63.5
	31,000–70,000	274	10.7
	>70,000	11	4
	Illiterate	1727	67.6
	Primary	773	30.2

Educational status	Matriculation	21	0.8
	Intermediate	20	0.8
	Graduate	12	0.5
	Post-Graduate	3	0.1
Occupation	Businessman	9	0.3
	Driver	1	0.0001
	Farmer	1	0.0001
	Government Employee	1	0.0001
	House wife	8	0.3
	Laborer	17	0.7
	Private Employee	16	0.6
	Student	718	28.1
	Un employed	10	0.4
	Others (beggers, drug addicts, toddlers)	1773	69.3

Main cause of injury (57.28%) was fall from height. While only 12.5% injuries were because of road crashes. Minor injuries; mostly abrasions (32.6%) were most frequent observed followed by punctured wounds (26.3%) (Table 2).

Table 2: Causes, types of injuries and conscious level reported among participants (n=2556)

Variables		Frequency	Percentage
Cause of injury	Road crash	319	12.48
	Violence	4	0.16
	Sports	11	0.43
	Industrial	1	0.04
	Fall from Heights	1464	57.28
	Others	757	29.62
Type of injury	Abrasion	832	32.6
	Punctured Wound	671	26.3
	Lacerated wound	434	17
	Wound > 5cm	34	1.3
	Joint dislocation	132	5.2
	Single fracture	99	3.9
	Multiple fracture	5	0.2
	Spinal injury	2	0.1
	Head injury	37	1.4
	Chest injury	2	0.1
	Abdomen injury	5	0.2
	Poly Trauma	303	11.9
Conscious level	Conscious	2276	89
	Semiconscious	198	7.7
	Unconscious	80	3.1
	Dead	2	1

Among the road crashes the highest incidence rate for injuries was due to bikes (6.5%) followed by pedestrians (4.5%). Most of the people were not provided first aid at the site of injury (91.7%). Majority of them were carried to hospitals through rickshaw (27.46%) or private ambulances (21%). Rescue 1122 services were provided to only 2.62% injured people (Table 3).

Table 3: Facilities provided to participants after getting injury (n=2556)

Variables		Frequency	Percentage
First Aid	Not given	2345	91.7
	Ambulance	68	2.7
	Govt. Hospital	113	4.4
	Private Hospital	30	1.2
Treatment	Treated & Discharge	2230	87.2
	Emergency treatment & admitted	325	12.7
	Emergency surgery	1	0.01
Mode of transportation	Rickshaw	702	27.46
	Private Ambulance	537	21
	Private car	466	18.23
	Taxi cab	387	15.14
	Bike	266	10.41
	Lift (people carrying the injured to the hospital)	127	4.97
	Rescue 1122	67	2.62
	Walk- in	4	0.16

Among those who used Rescue 1122 services, majority (86%) were highly satisfied, remaining 15% also gave good comments (Figure 1).

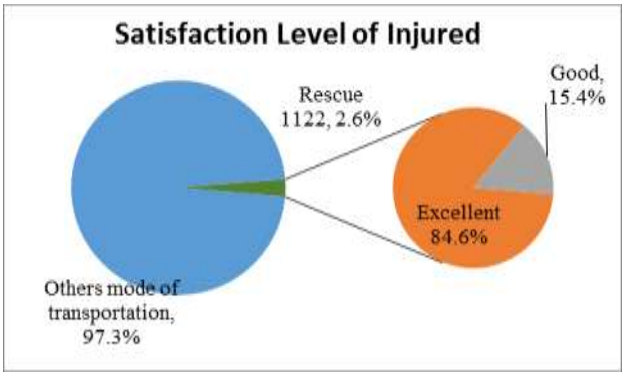

Figure 1: Satisfaction Level among injured persons (n=2556)

Discussion

As shown by the above-presented data analysis, there were more male victims (65.7%) than females. This is because of the social fact that males are more out-in-town for domestic and financial (bread & butter earning) activities so, being more vulnerable to road-crashes and occupational trauma. Mostly reported cases (57%) were of fall from heights while only 12.5% were due to road crashes. Among the road crashes the highest incidence rate for injuries were of bikes 6.5% followed by pedestrians (4.5%). Increasing number of four-wheeled small vehicles is clearly in-line with the expectation of involvement of cars in the accidents but recorded data has shown more involvement of the bikes in the road-crashes. Unauthorized commercial transport, lacking routine safety evaluation, long driving hours, over-speeding are the one aspect, mass-transit vehicles are potentially liable for the injury-proneness however. Education status, though not a direct indicator of driving skills but following the traffic rules and being able to drive and act safe has strong impact. More a person is literate less he or she is prone to accident either because of the relevant knowledge or just being a law-abiding citizen. As the data showed, there were only 0.1% of people with highest qualification had been the sufferers while maximum frequency (67.6%) belonged to the category of illiterates. Poor being more prone to the road, occupation and other work-related injuries are also indicative of the results of this provided data as 63.5% of entries belonged to the economical group of average monthly income of 15000-30000 PKR, which is the second lowest category.

Geographically evident areas of saturated traffic pose more threat to the people on the road mostly for their routine. As evident from the data the following areas; Satellite Town, Raja Bazar and Peer Wadhai have shown increased record of trauma, mostly RTCs, because of high urbanization and vehicle-motorization. Dropping at and picking kids from the schools, locations of offices and banks, catchment areas of commercial markets are most observed accident-prone areas. As evident from the study, minor injuries mostly abrasions are most frequent comparing with the rest of the types of injury. Evidence of poly-trauma has been found for 11% of the total recorded cases. Keeping in view the fact that the provided data and its employed collection tool is deficient in highlighting the outcome of all the injured taken to the hospitals. This is more of value for those who had been labeled as *major* and *severe* injured.

Evacuation and transportation of injured from the site of incident to the nearest medical facility is an important aspect of the rescuing. Though maximum part of the Golden Hour is potentially consumed in the arrangement of transport and getting through the heavy and disorganized traffic, much of the potential morbidity has been averted (53% of injured) as the facility was nearest (2-5 Km) while few (about 4%) had to travel more than 50 Km. The deficiencies in the data-collecting tool pose difficulty and getting desired correlation of various social and demographic factors, which could be conclusive for potential improvements and policy-making regarding achievement of safe roads and safe occupations.[14]

As Rescue 1122 being the only publically launched rescue service in Punjab about a decade back has its own limitations out of which many are not even mentioned or reported rather than addressed. Limited coverage area, lack of utilization is clearly highlighted as evidenced by only 2.6% of the injured being transported through Rescue 1122. Majority of the sufferers 27% had to arrange a private transport to rush to the hospital. Cars and motor-bikes, each carrying 18% and 21% of the injured from incident site. Among the injured who has been transported to nearest facilities by Rescue 1122, the satisfaction level was seen up to 90% despite of the fact that a majority i.e. 97.3% of the respondents were transported by other means to the nearest hospital. Fall from height has been observed more commonly associated mode of injury among males. Comparable ratios of male to female are high in all categories of mode of injury but the most commonly observed injury mode was the same.

Among the most commonly involved victim's vehicle i.e. bike has been observed to be the most commonly employed vehicle for the mode of hospital transportation. Second most common victim's category was pedestrian being transported to hospital mostly through taxi/cab. The unconscious status of the victims has been more commonly observed among age group 41-50 years. Bikes are the most commonly involved as primary vehicle and in

maximum situations it struck with some object or slipped. Almost all of the cars stuck also with some objects according to the data while pedestrians have been mostly hit by bikes.

Conclusion

Although rescue 1122 is publically available free of cost service, it is currently underutilized. Extending the coverage of rescue 1122 up to 36 districts of Punjab is a worth praising step but lack of awareness in general public is a major obstacle in reduction of mortality and morbidity. Hence, promoting public awareness about rescue 1122 can improve effectiveness of this service.

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